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(54) SEMICONDUCTOR DEVICE AND METHOD OF FORMING THE SAME

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(57) **ABSTRACT**

A semiconductor device and a method of forming thereof has a base body has a field stopping layer, a drift layer, a current spreading layer, a body region, and a source contact region layered in the order on a substrate. A trench that reaches the field stopping layer or the substrate is provided. A gate electrode is provided in the upper half section in the trench. In a section deeper than the position of the gate electrode in the trench, an insulator is buried that has a normal value of insulation breakdown electric field strength equal to or greater than the value of the insulation breakdown electric field strength of the semiconductor material of the base body. This inhibits short circuit between a gate and a drain due to insulation breakdown of an insulator film at the bottom of the trench to realize a high breakdown voltage in a semiconductor device using a semiconductor material such as SiC. The sidewall surfaces of the trench located below the gate electrode is inclined to form a trapezoidal profile.